OURNAL OF PROTEIN CHEMISTRY—Volume 12, 1993

urnal of Protein Chemistry is an international journal devoted to the publication and communication of original research work in all aspects of vestigations concerned with the elucidation of the molecular basis for protein function. The journal places equal emphasis on all facets of protein activity g., enzymes, hormones, protein antigens, antibodies, receptors, etc.). Since approaches to function are meaningful only with detailed knowledge of ucture and are equally based on innovations or applications from a diversity of organic and physical chemistry approaches, the journal also publishes ginal articles dealing with protein structure (covalent or three-dimensional), reactions of functional groups, protein conformation, and peptide synthesis. ensure maximum effectiveness and full accessibility to all investigators, the journal does not levy a page charge and emphasizes rapid publication of cepted manuscripts. Reports may be submitted as either regular papers or brief communications. All manuscripts are subject to review by referees who e experts in their fields. The referees' recommendations determine the acceptability of submitted manuscripts. The majority of reports are published as gular papers. A regular paper constitutes a complex piece of work that contributes significantly to the understanding of a particular problem. The work ould be described concisely but in sufficient detail to permit experimental confirmation by other interested investigators. Brief communications constitute anuscripts based on observations that are considered timely and, accordingly, their rapid dissemination will be beneficial to the advancement of the field. ese manuscripts should be no more than four printed pages and are assured publication in the next issue after acceptance. They are judged by the ferees on the basis of not only scientific merit, but also fulfilment of the requirement for urgency.

DITOR-IN-CHIEF

. Zouhair Atassi, Baylor College of Medicine, Houston, Texas

SSOCIATE EDITORS

awrence J. Berliner, The Ohio State University, Columbus, Ohio

anayotis G. Katsoyannis, City University of New York, New York, New York

larald Tschesche, Bielefeld University, Bielefeld, Germany

OOK REVIEW EDITOR

lendel Friedman, U.S. Department of Agriculture, Albany, California

DITORIAL BOARD

Claus Biemann, Massachusetts Institute of Technology, Cambridge, Massachusetts

Günter Blobel, Rockefeller University, New York, New York

. L. Blundell, Birkbeck College, London, England

udwig Brand, Johns Hopkins University, Baltimore, Maryland

Keith Brocklehurst, University of London, London, England

. Donald Capra, University of Texas Health Science Center, Dallas, Texas

Guy G. Dodson, University of York, York, England

Yoshiya Endo, Nagoya University, Nagoya, Japan

Gerald D. Fasman, Brandeis University, Waltham, Massachusetts

H. Fasold, Johann Wolfgang Goethe University, Frankfurt, Germany

Robert E. Feeney, University of California, Davis, California

Hiram F. Gilbert, Baylor College of Medicine, Houston, Texas

Frederick C. Hartman, Oak Ridge National Laboratory, Oak Ridge, Tennessee

Robert L. Heinrikson, Upjohn Company, Kalamazoo, Michigan

George P. Hess, Cornell University, Ithaca, New York

Paul Martin Horowitz, University of Texas Health Science Center, San Antonio, Texas

Victor J. Hruby, University of Arizona, Tucson, Arizona

Ferdinand Hucho, Free University of Berlin, Berlin, Germany

Michael W. Hunkapiller, Applied Biosystems, Inc., Foster City, California

Donald Hunt, University of Virginia, Charlottesville, Virginia

Hans Jörnvall, Karolinska Institute, Stockholm, Sweden

George L. Kenyon, University of California, San Francisco, California

Michael Laskowski, Jr., Purdue University, West Lafayette, Indiana

Richard A. Laursen, Boston University, Boston, Massachusetts

Teh-Yung Liu, National Institutes of Health, Bethesda, Maryland

John J. Marchalonis, University of Arizona, Tucson, Arizona

Marino Martinez-Carrion, University of Missouri, Kansas City, Missouri

Tatsuo Miyazawa, University of Tokyo, Osaka, Japan

Joel D. Morrisett, Methodist Hospital, Houston, Texas

Yash P. Meyer, State University of New York, Albany, New York

Yale Nemerson, City University of New York, New York, New York

Richard N. Perham, University of Cambridge, Cambridge, England

Gregory A. Petsko, Brandeis University, Waltham, Massachusetts

James C. Powers, Georgia Institute of Technology, Atlanta, Georgia

Oleg B. Ptitsyn, Russian Academy of Sciences, Pushchino, Russia

Florante A. Quiocho, Baylor College of Medicine, Houston, Texas

James F. Riordan, Harvard Medical School, Boston, Massachusetts

Harold A. Scheraga, Cornell University, Ithaca, New York

Valentin M. Stepanov, Institute of Genetics, Moscow, Russia

Howard S. Tager, University of Chicago, Chicago, Illinois

Dan W. Urry, University of Alabama School of Medicine, Birmingham, Alabama

Bert L. Vallee, Harvard Medical School, Boston, Massachusetts

Carel J. van Oss, State University of New York, Buffalo, New York

Salih J. Wakil, Baylor College of Medicine, Houston, Texas

Darrell N. Ward, University of Texas Cancer Center, Houston, Texas

Brigitte Wittmann-Liebold, Max Planck Institute for Molecular Genetics, Berlin, Germany

Haruaki Yajima, Kyoto University, Kyoto, Japan

Journal of Protein Chemistry is published bimonthly at 1 Alanbrooke Road, Belfast BT6 9HF, Northern Ireland, by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1993, Volume 12 (6 issues) will be published. *Journal of Protein Chemistry* is abstracted or indexed in Chemical Abstracts, Current Awareness in Biological Sciences, Current Contents, Excerpta Medica, and Index Medicus.

© 1993 Plenum Publishing Corporation. *Journal of Protein Chemistry* participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of $7.00 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, Massachusetts 01923, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore, this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or resale, nor to the reprinting of figures, tables, and text excerpts. 0277-8033/93 $7.00.

Advertising inquiries should be addressed to Advertising Sales, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013—telephone (212) 620-8495 and fax (212) 647-1898.

Subscription inquiries and subscription orders should be addressed to the publisher at Substitution Department, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013 or faxed to the Subscription Department at its number (212) 807-1047. Subscription rates:

Volume 12, 1993 (6 issues) $325.000 (outside the U.S., $380.00). Price for individual subscribers certifying that the journal is for their personal use, $55.00 (outside the U.S., $64.00).

Volume 13, 1994 (8 issues) $375.00 (outside the U.S., $440.00). Price for individual subscribers certifying that the journal is for their personal use, $60.00 (outside the U.S., $70.00).

Second-class postage paid at Jamaica, N.Y. 11431. Postmaster: Send address changes to *Journal of Protein Chemistry*, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. Air freight and mailing in the USA by Publications Expediting, Inc., 200 Meacham Avenue, Elmont, N.Y. 11003.

Printed in Northern Ireland.

Published bimonthly at 1 Alanbrooke Road, Belfast BT6 9HF, Northern Ireland, by Plenum Publishing Corporation, 233 Spring Street, New York N.Y. 10013. In 1993, Volume 12 (6 issues) will be published. Subscription orders should be addressed to the publisher. Advertising inquiries should be addressed to Advertising Sales, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013—telephone (212) 620-8495 and fax (212) 647-1898. *Journal of Protein Chemistry* is abstracted or indexed in Chemical Abstracts, Current Awareness in Biological Sciences, Current Contents, Excerpta Medica, and Index Medicus. © 1993 Plenum Publishing Corporation. *Journal of Protein Chemistry* participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of $7.00 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, Massachusetts 01923, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts. 0277-8033/93 $7.00

JOURNAL OF PROTEIN CHEMISTRY

olume 12, Number 1 February 1993

CONTENTS

pecificity of Factor Xa in the Cleavage of Fusion Proteins 1
Mingyue He, Li Jin, and Brian Austen

ssential Sulfhydryl Group of Malic Enzyme from *Escherichia Coli* 7
Gu-Gang Chang, John Satterlee, and Robert Y. Hsu

Liquid Chromatographic Analysis of Amino Acids: Using Dimethylamino-Azobenzenesulfonyl Chloride and Hypersil ODS Column to Analyze the Composition of Apo B Peptides 11
Chao-Yuh Yang, Thomas Yang, and Brian K. Yeh

Pectinase *Aspergillus* sp. Polygalacturonase: Multiplicity, Divergence, and Structural Patterns Linking Fungal, Bacterial, and Plant Polygalacturonases 15
Eva Stratilová, Oskar Markovič, Dagmar Škrovinová, Lubomíra Rexová-Benková, and Hans Jörnvall

nteraction Between Cystatin-Derived Peptides and Papain 23
Gilles Lalmanach, Johan Hoebeke, Thierry Moreau, Michèle Brillard-Bourdet, Michèle Ferrer-Di Martino, Francisco Borras-Cuesta, and Francis Gauthier

Hemoglobins with Multiple Reactive Sulphydryl Groups: The Reaction of Dog Hemoglobin with 5,5′-Dithiobis (2-Nitrobenzoate) 33
Kehinde Onwochei Okonjo and Isaiah Ajibade Adejoro

nteractions of a Fluorescently Labeled Peptide with Kringle Domains in Proteins 39
Aldona Balciunis, Gunther M. Fless, Angelo M. Scanu, and Robert A. Copeland

Amino Acid Sequence of Myoglobin from the Chiton *Liolophura japonica* and a Phylogenetic Tree for Molluscan Globins 45
Tomohiko Suzuki, Takahiro Furukohri, and Sumito Okamoto

Diethylpyrocarbonate Reactivity of *Klebsiella aerogenes* Urease: Effect of *p*H and Active Site Ligands on the Rate of Inactivation 51
Il-Seon Park and Robert P. Hausinger

Bothropstoxin-I: Amino Acid Sequence and Function 57
A. C. O. Cintra, S. Marangoni, B. Oliveira, and J. R. Giglio

Partially Folded Rhodanese or Its N-Terminal Sequence Can Disrupt Phospholipid Vesicles 65
Jose A. Mendoza, Earl Grant, Jr., and Paul M. Horowitz

Basic Trypsin-Subtilisin Inhibitor from Marine Turtle Egg White: Hydrodynamic and Inhibitory Properties 71
P. C. Sil, T. K. Chaudhuri, and N. K. Sinha

The Complete Amino Acid Sequence of Ribosomal Protein S8 from *Thermus Thermophilus* 79
J. Reinbolt, I. Eliseikina, S. Sedelnilkova, M. Garber, C. Ehresmann, and B. Ehresmann

Scanning Microcalorimetry and Circular Dichroism Study of Melting of the Natural Polypeptides in the Left-Handed Helical Conformation 85
Alexander A. Makarov, Ivan A. Adzhubei, Irina I. Protasevich, Vladimir M. Lobachov, and Natalia G. Esipova

Primary Structure of Rabbit Lens α-Crystallins 93
Riffat Parveen, Jean B. Smith, Yiping Sun, and David L. Smith

The Peptidase Activity of Human Serum Butyrylcholinesterase: Studies Using Monoclonal Antibodies and Characterization of the Peptidase 103
Rammohan V. Rao and Aiylam S. Balasubramanian

8 266HI 481
×1
5/95 31249-200 NUCLE

JOURNAL OF PROTEIN CHEMISTRY

Volume 12, Number 2 **April 1993**

CONTENTS

A Simplified Method for the Purification of Human Red Blood Cell Glyoxalase. I. Characteristics, Immunoblotting, and Inhibitor Studies 111
Rosamund E. Allen, Theodore W. C. Lo, and Paul J. Thornalley

Refolding of Cytochrome b_{562} and its Structural Stabilization by Introducing a Disulfide Bond 121
Yukio Kobayashi, Hiroyuki Sasabe, and Nobuhiko Saitô

Conformational Analysis and Proteolytic Processing of Synthetic Pre-Pro-GnRH/GAP Protein 133
Jun-ling You, Saskia C. F. Milton, Raymond C. deLisle Milton, N. S. Rangaraju, and Robert B. Harris

Application of Three-Dimensional Molecular Hydrophobicity Potential to the Analysis of Spatial Organization of Membrane Domains in Proteins. III. Modeling of Intramembrane Moiety of Na^+, K^+-ATPase 143
Roman G. Efremov, Dmitry I. Gulyaev, and Nikolai N. Modyanov

Conformation and Activity of *Phaseolus coccineus* var. rubronanus Lectin 153
Wei Xin Shi, Zhi Min Shen, Ce Sun, and Jen Tsi Yang

Modification of Cys-128 of Pig Kidney Fructose 1,6-Bisphosphatase with Different Thiol Reagents: Size Dependent Effect on the Substrate and Fructose-2,6-Bisphosphate Interaction 159
Alejandro M. Reyes, Nicole Bravo, Heide Ludwig, Ana Iriarte, and Juan C. Slebe

A New Approach to Predicting Protein Folding Types 169
Kuo-Chen Chou and Chun-Ting Zhang

Fluorescence Quenching in Riboflavin-Binding Protein and its Complex with Riboflavine 179
Ibeth Guevara and Zdzisław Żak

An Examination of Structural Interactions Presumed to be of Importance in the Stabilization of Phospholase A_2 Dimers Based upon Comparative Protein Sequence Analysis of a Monomeric and Dimeric Enzyme from the Venom of *Agkistrodon p. piscivorus* 187
William Welches, Ilene Reardon, and Robert L. Heinrikson

Studies in C-Terminal Sequencing: New Reagents for the Synthesis of Peptidylthiohydantoins 195
Narmada R. Shenoy, John E. Shively, and Jerome M. Bailey

The Role of an Active-Site Lysyl Residue of Spinach Phosphoribulokinase as Explored by Site-Directed Mutagenesis 207
Richard J. Mural, Tse-Yuan S. Lu, and Fred C. Hartman

Tryptophan^{207} is Involved in the GTP-Dependent Conformational Switch in the α Subunit of the G Protein Transducin: Chymotrytic Digestion Patterns of the GTPγS and GDP-Bound Forms 215
Maria R. Mazzoni and Heidi E. Hamm

Secondary Structural Changes of Large and Small Fragments of Bovine Serum Albumin in Thermal Denaturation and in Sodium Dodecyl Sulfate Denaturation 223
Kunio Takeda, Satoshi Hamada, and Akira Wada

Characterization of Two Fluorescent Tryptophans in Recombinant Human Granulocyte-Colony Stimulating Factor: Comparison of Native Sequence Protein and Tryptophan-Deficient Mutants 229
Carl G. Kolvenbach, Steven Elliott, Raj Sachdev, Tsutomu Arakawa, and Linda O. Narhi

Structural Characterization of the Two Refold Dimers of Recombinant Bovine Somatotrophin (bST) 237
Jacob S. Tou, Bernard N. Violand, Michael R. Schlittler, and Michael G. Jennings

JOURNAL OF PROTEIN CHEMISTRY

Volume 12, Number 3 June 1993

CONTENTS

Mutation of Arg55/56 to Leu55/Ala56 in Insulin-Like Growth Factor-I Results in Two Forms Different in Disulfide Structure and Native Conformation But Similar Under Reverse-Phase Conditions 247
Robert D. Rosenfeld, Nessa M. Noone, Scott L. Lauren, Michael F. Rohde, Linda O. Narhi, and Tsutomu Arakawa

Binding Affinity of Influenza Virus N9 Neuraminidase with Fab Fragments of Monoclonal Antibodies NC10 and NC41 255
L. C. Gruen, T. L. McInerney, R. G. Webster, and D. C. Jackson

The Amino Acid Sequence of Hemoglobin III from the Symbiont-Harboring Clam *Lucina pectinata* 261
Jerrolynn D. Hockenhull-Johnson, Mary S. Stern, Jonathan B. Wittenberg, Serge N. Vinogradov, Oscar H. Kapp, and Daniel A. Walz

Sequence and Structural Homology Among Membrane-Associated Domains of CFTR and Certain Transporter Proteins 279
Parthasarathy Manavalan, Alan E. Smith, and John M. McPherson

Predicting Cleavability of Peptide Sequences by HIV Protease via Correlation-Angle Approach 291
James J. Chou

Comparative Studies of the Interaction of Human and Bovine Platelet Factor 4 with Heparin Using Histidine NMR Resonances as Spectroscopic Probes 303
Christopher J. Talpas and Lana Lee

Thermally Perturbed Rhodanese Can Be Protected from Inactivation by Self-Association 311
Joseph M. Dungan and Paul M. Horowitz

Large-Scale Purification and Refolding of HIV-1 Protease From *Escherichia coli* Inclusion Bodies 323
John O. Hui, Alfredo G. Tomasselli, Ilene M. Reardon, June M. Lull, David P. Brunner, Che-Shen C. Tomich, and Robert L. Heinrikson

Graphic Analysis of Codon Usage Strategy in 1490 Human Proteins 329
Chun-Ting Zhang and Kuo-Chen Chou

Conformational Change During Photocycle of Bacteriorhodopsin and Proton-Pumping Mechanism 337
Kuo-Chen Chou

Botulinum Type A Neurotoxin Digested with Pepsin Yields 132, 97, 72, 45, 42, and 18 KD Fragments 351
Juan A. Gimenez and Bibhuti R. DasGupta

The Complete Amino Acid Sequence of a Hirudin Variant from the Leech *Hirudinaria manillensis* 365
A. Electricwala, R. Hartwell, M. D. Scawen, and T. Atkinson

Sequential ^{1}H-NMR Assignments of Neurotoxin III From the Sea Anemone *Heteractis macrodactylus* and Structural Comparison with Related Toxins 371
Mark G. Hinds and Raymond S. Norton

JOURNAL OF PROTEIN CHEMISTRY

Volume 12, Number 4 **August 1993**

CONTENTS

The Amino Acid Sequence of a Protein from Wheat Kernel Closely Related to Proteins Involved in the Mechanisms of Plant Defence 379
Carla Caruso, Carlo Caporale, Elia Poerio, Angelo Facchiano, and Vincenzo Buonocore

Conformation of the Abortifacient Protein Pinellin: A Circular Dichroic Study 387
Zong Jin Tao, Zhi Min Shen, and Jen Tsi Yang

Cyclic Modulation of Cross-Linking Interactions of Microtubule-Associated Protein-2 with Actin and Microtubules by Protein Kinase FA 393
Shiaw-Der Yang, Jen-Shin Song, Hui-Wen Liu, and Wen-Hsiung Chan

Amino Acid Substitutes Outside a Preselected Antigenic Region in Hemoglobin Affect the Binding to Monoclonal Antibodies Obtained by Immunization with the Synthetic Region 403
Minako Oshima, Shigenori Nakamura, and M. Zouhair Atassi

Limited Proteolysis of *Saccharomyces cerevisiae* Phosphoenolpyruvate Carboxykinase 413
Lorena Herrera, Maria Victoria Encinas, Ana Maria Jabalquinto, and Emilio Cardemil

Amino Acid Sequences of Ovomucoid Third Domains from 27 Additional Species of Birds 419
Izydor Apostol, Anthony Giletto, Tomoko Komiyama, WenLei Zhang, and Michael Laskowski, Jr.

Limited Tryptic Digestion of Recombinant Human Interleukin-2: Structure-Binding Relationships with the α Chain of the Interleukin-2 Receptor 435
Kurt Hollfelder, Fariba Rabban, Feng Wang, and Yu-Ching E. Pan

Probing the Fatty Acid Binding Site of β-Lactoglobulins 443
Danielle Frapin, Eric Dufour, and Tomasz Haertle

Modification of Maize Phosphoenolpyruvate Carboxylase by Woodward's Reagent *K* 451
G. B. Maralihalli and A. S. Bhagwat

The Disulfide Bridges of the Immunoglobulin-Like Domains of Fcγ RIIIB are Essential for Efficient Expression and Biological Activity 459
Barbara Enenkel and Jurgen Frey

Separation and Characterization of the A Chain and B Chain in β_1-Bungarotoxin from *Bungarus Multicinctus* (Taiwan Banded Krait) Venom 469
L. S. Chang and C. C. Yang

Conformational Changes of α-Lactalbumin and Its Fragment, Phe^{31}-Ile^{59}, Induced by Sodium Dodecyl Sulfate 477
Satoshi Hamada and Kunio Takeda

Comparison of Secondary Structures of Insulin and Proinsulin by FTIR 483
Ling Xie and Chen-Lu Tsou

Recombinant Human IL-6 Expressed in *E. coli* Undergoes Selective N-Terminal Degradation: Evidence That the Protein Consists of a Stable Core and a Non-Essential Flexible N-Terminal 489
Amanda E. I. Proudfoot, Steven C. Brown, Alain R. Bernard, Jean-Yves Bonnefoy, and Eric H. Kawashima

The Effect of Placement of Tryptophan Residues in Selected A-Chain Positions on the Biological Profile of Insulin 499
Ying-Chi Chu, G. Thompson Burke, J.B. Alexander Ross, and Panayotis G. Katsoyannis

Announcement 507

JOURNAL OF PROTEIN CHEMISTRY

lume 12, Number 5 October 1993

CONTENTS

olution of Parallel β/α-Barrel Enzyme Family Lightened by Structural Data on Starch-Processing Enzymes 509
Štefan Janeček and Štefan Baláž

scrimination of Folding Types of Globular Proteins Based on Average Distance Maps Constructed from Their Sequences 515
Takeshi Kikuchi

steine 17 of Recombinant Human Granulocyte-Colony Stimulating Factor is Partially Solvent-Exposed 525
Tsutomu Arakawa, Steven J. Prestrelski, Linda O. Narhi, Thomas C. Boone, and William C. Kenney

tal Synthesis, Purification, and Characterization of Human [Phe(p-CH_2SO_3Na)^{52}, Nle^{32,53,56}, Nal^{55}]-CCK_{20-58}, [Tyr^{52}, Nle^{32,53,56}, Nal^{55}]-CCK-58, and [Phe(p-CH_2SO_3Na)^{52}, Nle^{32,53,56}, Nal^{55}]-CCK-58 533
Maria Terêsa Machini Miranda, A. Grey Craig, Charleen Miller, Rodger A. Liddle, and Jean E. Rivier

ategies for Selecting Mutation Sites for Methionine Enhancement in the Bean Seed Storage Protein Phaseolin 545
John M. Dyer, Jeffrey W. Nelson, and Norimoto Murai

ndom Chemical Modification of the Oxygen-Linked Chloride-Binding Sites of Hemoglobin: Those in the Central Dyad Axis May Influence the Transition Between Deoxy- and Oxy-Hemoglobin 561
Hiroshi Ueno, Anthony M. Popowicz, and James M. Manning

activity of Cysteinyl, Arginyl, and Lysyl Residues of *Escherichia coli* Phosphoenolpyruvate Carboxykinase Against Group-Specific Chemical Reagents 571
Sergio Bazaes, Rafael Silva, Hughes Goldie, Emilio Cardemil, and Ana Maria Jabalquinto

ructural Determinants of the Intrinsic Fluorescence Emission in Notexin and Phospholipase A_2 Enzymes 579
Long-sen Chang and Chen-chung Yang

imary Structure of Beijing Duck Apolipoprotein A-1 585
Zi-Wei Gu, Yong-Hong Xie, Manlan Yang, James T. Sparrow, Keqin Wang, You Li, Wen-Hsiung Li, Antonio M. Gotto, Jr., and Chao-Yuh Yang

ovine Testis Acylphosphatase: Purification and Amino Acid Sequence 593
Luigia Pazzagli, Gianni Cappugi, Guido Camici, Giampaolo Manao, and Giampietro Ramponi

omparative Studies on S-Adenosyl-L-Methionine Binding Sites of Protein N-Methyltransferases, Using 8-Azido-S-Adenosyl-L-Methionine as Photoaffinity Probe 603
Samiuddin Khaja Syed, Sangduk Kim, and Woon Ki Paik

rification and Characterization of β-Structural Domains of β-Lactoglobulin Liberated by Limited Proteolysis 613
Sharon X. Chen, Charles C. Hardin, and Harold E. Swaisgood

sing Periodate-Oxidized Nucleotide as Affinity Label for the Nucleotide Site of Proteins 627
Chin-Chun Lin and Gu-Gang Chang

ffects of Zn(II) on Galactosyltransferase Activity 633
Eugene A. Permyakov, Irene L. Reyzer, and Lawrence J. Berliner

emoglobins with Multiple Reactive Sulphydryl Groups: The Reaction of Pigeon Hemoglobin with 5,5′-Dithiobis (2-Nitrobenzoic Acid) 639
Kehinde Onwochei Okonjo and Thomas Okurut Okia

NNOUNCEMENT 647

JOURNAL OF PROTEIN CHEMISTRY

Volume 12, Number 6 **December 199**

CONTENTS

ANNOUNCEMENT 64

Thermal Inactivation of Butyrylcholinesterase and Acetylcholinesterase 65
Sybil K. Burgess and Sharon L. Oxendine

Autoreactive Sites of Human λ Light Chain Mapped by Comprehensive Peptide Synthesis 65
Hulya Kaymaz and John J. Marchalonis

Immunological and Biochemical Study on Tissue and Subcellular Distributions of Protein Kinase F_A (An Activating Factor of ATP.Mg-Dependent Protein Phosphatase): A Simplified and Efficient Procedure for High Quantity Purification from Brain 66
Jau-Song Yu and Shiaw-Der Yang

Interaction of Thrombin with Antithrombin, Heparin Cofactor II, and Protein C Inhibitor 67
Herbert C. Whinna and Frank C. Church

Densimetric Determination of Equilibrium Binding of Sucrose Octasulfate with Basic Fibroblast Growth Factor 68
Tsutomu Arakawa, Jie Wen, and John S. Philo

Carbon-13 NMR Studies of the Lysine Side Chains of Calmodulin and its Proteolytic Fragments 69
M. Entazul Huque and Hans J. Vogel

Studies on the Specificity of HIV Protease: An Application of Markov Chain Theory 70
Kuo-Chen Chou and Chun-Ting Zhang

The Complete Primary Structure of Ribosomal Protein L1 from *Thermus thermophilus* 72
R. Amons, T. A. Muranova, A. I. Rykunova, I. A. Eliseikina, and S. E. Sedelnikova

Assignment of the Three Disulfide Bridges of Huwentoxin-I, a Neurotoxin from the Spider *Selenocosmia huwena* 73
Dongyi Zhang and Songping Liang

Contribution of the B16 and B26 Tyrosine Residues to the Biological Activity of Insulin 74
Shi-quan Hu, G. Thompson Burke, and Panayotis G. Katsoyannis

Lipases from *Rhizomucor miehei* and *Humicola lanuginosa*: Modification of the Lid Covering the Active Site Alters Enantioselectivity 74
Mats Holmquist, Mats Martinelle, Per Berglund, Ib Groth Clausen, Shamkant Patkar, Allan Svendsen, and Karl Hult

Assignment of All Four Disulfide Bridges in Echistatin 75
Mark Bauer, Yiping Sun, Charles Degenhardt, and Barbara Kozikowski

Purification and Partial Sequence of Proteins Involved in the Cholic Acid Transport into Rat Liver Hepatocytes 76
Axel Hoffman, Stefan Müllner, Kornelia Ziegler, and Hugo Fasold

Chemical Characterization and Location of Ionic Interactions Involved in the Assembly of the Cl Complex of Human Complement 77
Chantal Illy, Nicole M. Thielens, and Gérard J. Arlaud

Critical Amino Acids Responsible for Converting Specificities of Proteins and for Enhancing Enzyme Evolution are Located Around β-Turn Potentials: Data-Based Prediction 78
Makoto Murakami

Starch- and Glycogen-Debranching and Branching Enzymes: Prediction of Structural Features of the Catalytic $(\beta/\alpha)_8$-Barrel Domain and Evolutionary Relationship to Other Amylolytic Enzymes 79
Hans M. Jespersen, E. Ann MacGregor, Bernard Henrissat, Michael R. Sierks, and Birts Svensson

ANNOUNCEMENT 80